

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/T2004/000222

International filing date (day/month/year)
19.04.2004

Priority date (day/month/year)

International Patent Classification (IPC) or both national classification and IPC
H02H3/33

Applicant
KEM-O-TEK ITALIA S.R.L.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1 (a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)

10/589332
iAP20 Rec'd PCT/PTO 14 AUG 2005
International application No.

PCT/IT2004/000222

Re Item V.

- 1 The following documents are referred to in this communication:
D1 : US 5 956 218 A (BERTHOLD RAINER) 21 September 1999
D2 : GB 2 203 907 A (QUALCAST GARDEN PROD) 26 October 1988
D3 : US 4 816 957 A (IRWIN LAWRENCE F) 28 March 1989

2 INDEPENDENT CLAIM 1

- 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is **not new** in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parenthesis applying to this document, see in particular Fig. 3):

a method for the protection against leakage currents (Title) generated in the supply of a load (L1, N) connected to an electrical network (1,2), comprising in combination the phases of:

- *generating and detecting a pre-established test leakage current (14, as described in Col. 7, lines 20-25), thereby verifying the efficiency and the calibration of the detection of the leakage current (Col. 7, lines 35-44);*
- *detecting the actual leakage currents and generating a signal proportional thereto (col. 6, lines 57-58);*
- *acquiring said proportional signal and disconnecting the load from the electrical network when reaching a dangerous condition corresponding to an acquired signal of a magnitude greater than a limit value (col. 6, lines 58-60).*

- 2.2 The same conclusion could be drawn also with reference to the methods for protection disclosed in Document D2 and D3 (see in D2, Fig. 1, the detector 11, the disconnecting means RC1+R1, and the means for generating a test leakage current 12+TR1, as explained in page 5, lines 12-23; in D3, Fig. 3, the detector T2, the disconnecting means RLY, and the test current generator SCR3, as explained in Col. 4, line 52 to col. 5 line 6).

3 INDEPENDENT CLAIM 16

- 3.1 Lack of novelty in the sense of Article 33(2) PCT appears also for the subject-matter of independent claim 16, in which an apparatus for performing the method according

to claim 1 is disclosed. Document D1 describes in fact such an apparatus (see Fig. 3) comprising:

- *an electrically controlled switch (4) set between the network (1,2) and the load (L1, N) which disconnects the load from the network when open and connects it when closed;*
- *detecting means for leakage currents (3) that generate a signal proportional to the same leakage currents (across 15);*
- *an elaboration unit (16) connected with the detecting means for leakage currents to acquire said proportional signal,*
which comprises a generator circuit (14) to generate a test leakage current, thereby verifying the efficiency and the calibration of the detection of the leakage current (Col. 7, lines 35-44) and of the switch (col. 7, line 65 to col. 8 line 9).

4 INDEPENDENT CLAIMS 33, 35

With reference to the independent claims 33 and 35, the present application does not meet the requirements of Article 33(1) PCT.

- 4.1 The subject-matter of claim 35 is anticipated by document D3 (see in Fig. 2 the socket 20 comprising the protection apparatus 50, as described in col. 3, lines 27-39), therefore is considered not new.
- 4.2 Claim 33, which refers to a plug comprising the same apparatus, discloses a solution for the housing which a person skilled in the art would consider obvious and interchangeable with the solution of claim 35 where the circumstances make it desirable. The subject-matter of claim 33 therefore lacks of inventiveness in the sense of Article 33(3) PCT.

5 DEPENDENT CLAIMS 2-15, 17-32, 34

Dependent claims 2-15, 17-32, 34 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

The subject-matter of claims 2, 3 is already disclosed in D2 (see for claim 2 the test before connecting the load described in page 5, lines 12-23; for claim 3 the test sequence mentioned in page 7, lines 26-30).

The subject-matter of claims 4-15, 17-22, 24-32 is already disclosed in document D1, see in particular:

- for claims 4-6 the offset compensation for the permanent leakage current described in col. 5, lines 1-11;
- for claims 7 and 27: the cyclic verification as per col. 3 lines 60-65;
- for claim 8, the disconnection of load under failure conditions, mentioned in col. 9, lines 17-23);
- for claims 9 and 22: the current transformer (3) in Fig. 3;
- for claims 10 and 11: the electrically controlled switch (4,5,6) in Fig. 3;
- for claims 12-15 and 30-32: the additional overcurrent protection with the relevant current sensor as described in col. 4, lines 40-53;
- for claim 17 - 19: the microcontroller described in col. 3, lines 27-44;
- for claim 20: the implicit presence of a stabilized power supply for the microcontroller 20 in Fig 9 or 10;
- for claim 21: the single-phase ac voltage L1-N in Fig. 3;
- for claim 24 and 25: the operational amplifier in unit 16, mentioned in col. 7, line 18, and the implicit presence of a relevant power supply;
- for claim 26, the several alarms mentioned in col. 7, lines 55-58;
- for claims 28 and 29: the comparison means 16 equipped with a storage unit, as described in col. 7, lines 28-33;

The subject-matter of claims 23 and 34 is already disclosed in D3 (see for claim 23: in Fig. 3 the triac SCR3 with resistor R9; for claim 34 the use of the protection apparatus for hair-dryers mentioned in col. 3, lines 35-39)

6. INDUSTRIAL APPLICABILITY

The subject-matter of the present application relates to protection methods and apparatuses to be used in electrical installations. The requirements of Article 33(4) PCT regarding the industrial applicability are therefore fulfilled.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

10/589332

International application No.
PCT/IT2004/000222

AP20 REG PCT/PTO 14 AUG 2005

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IT2004/000222

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	33,34
	No: Claims	1-32,35
Inventive step (IS)	Yes: Claims	=
	No: Claims	1-35
Industrial applicability (IA)	Yes: Claims	1-35
	No: Claims	=

2. Citations and explanations

see separate sheet